MALTA ELEMENTARY SCHOOL (PWS 5160030)
SOURCE WATER ASSESSMENT FINAL REPORT

September 27, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area, sensitivity factors associated with the wells, and aquifer characteristics.

This report, *Source Water Assessment for the Malta Elementary School, Malta, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Malta Elementary School drinking water system consists of one ground water well source. The well is located in the southeast corner Malta. The well was constructed in 1990, is 338 feet deep, and the water system serves approximately 181 people through 5 connections.

Final susceptibility scores are derived from equally weighing system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential Contaminants/Land Uses are divided into four categories, inorganic contaminants (IOCs, e.g. nitrates, arsenic), volatile organic contaminants (VOCs, e.g. petroleum products), synthetic organic contaminants (SOCs, e.g. pesticides), and microbial contaminants (e.g. bacteria). Different wells can be subject to various contamination settings, therefore separate scores are given for each type of contaminant.

In terms of overall susceptibility, Well #1 rated moderate for IOCs, VOCs, SOCs, and microbials. Hydrologic sensitivity and system construction scores were both moderate for the well. Land use scores in the well were high for IOCs, VOCs, SOCs, and low for microbials.

There are no significant water chemistry issues affecting the Malta Elementary School well. No microbial bacteria, VOCs, or SOCs have ever been detected in the well or its distribution system. Traces of the IOCs fluoride, chromium, barium have been detected, as well as nitrate in concentrations of 1.5 milligram/liter (mg/l), and arsenic in concentrations of 3 parts per billion (ppb) have been detected in the tested water. The maximum contaminant level (MCL) for nitrate set by the EPA is 10 mg/l, and the MCL for arsenic is 10 ppb. Although not a concern at this point, the well exists in a region of high nitrogen fertilizer, high county wide agricultural chemical use, and high county-wide herbicide use.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the Malta Elementary School, drinking water protection activities should first focus on maintaining the requirements of the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Any spills that occur within the delineated area should be carefully monitored, as should any future development. Practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. No chemicals should be stored or applied within a 50-foot radius of the wellhead. As most of the designated areas are outside the direct jurisdiction of the Malta Elementary School, making partnerships with state and local agencies and industry groups are critical to success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near both urban and residential land uses. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As major transportation corridors are located in the delineation, the State Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting), or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR MALTA ELEMENTARY SCHOOL, MALTA, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment areas and the inventory of significant potential sources of contamination identified within those areas are attached. The lists of significant potential contaminant source categories and their rankings, used to develop this assessment, are also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the EPA to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of this assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho DEQ recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Malta Elementary School drinking water system consists of one ground water well source. The well is located in the southeast corner of Malta. The well was constructed in 1990, is 338 feet deep, and the water system serves approximately 181 people through 5 connections.

There are no significant water chemistry issues affecting the Malta Elementary School well. No microbial bacteria, VOCs, or SOCs have ever been detected in the well or its distribution system. Traces of the IOCs fluoride, chromium, barium have been detected, as well as nitrate in concentrations of 1.5 mg/l, and arsenic in concentrations of 3 ppb have been detected in the tested water. The MCL for nitrate set by EPA is 10 mg/l, and the MCL for arsenic is 10 ppb. Although not a concern at this point, the well exists in a region of high nitrogen fertilizer, high county wide agricultural chemical use, and high county-wide herbicide use.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer.

Aquifers in the Raft River Basin consist of lake and volcanic deposits, alluvial deposits, and basalt. Ground water occurs in both water table and artesian conditions. Interbedded lenses and tongues of silt and clay support localized perched zones (Nace, 1961).

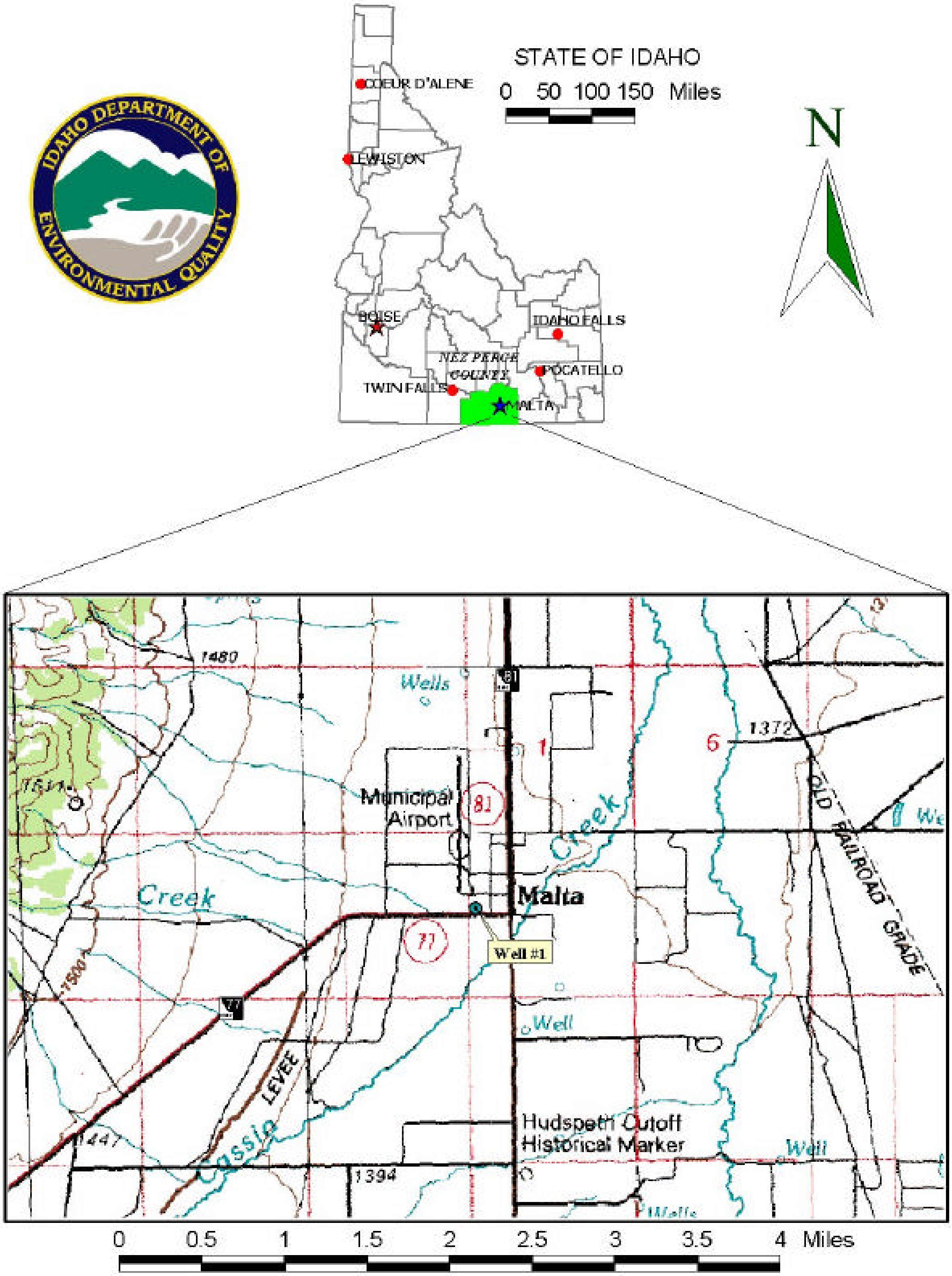
Ground water flows south to north toward the Snake River, generally following the direction of surface water flow. Recharge occurs principally from precipitation, infiltration from streams, and irrigation water (Nace, 1961).

Malta Elementary is the only public water system in the city of Malta. There are a number of domestic wells in the area that produce from similar zones (test points). Malta Elementary's well log lists the well test discharge at 75 gallons per minute (gpm). Though the value seemed high for a school of 180, the value was used as a conservative estimate.

A Bendixsen (2000) memo shows the ground water elevations in the spring of 1980. The gradient coming off the Cassia Creek drainage to the west is steeper than that coming from the Raft River to the south. The map also does not extrapolate the water table elevation lines between the two river basins. No-flow boundaries were inputted to separate the two river valleys (designated the "a" model) and the simulations were re-run. In general, there was little difference between the two model runs. Eight times the flux was used from Cassia Creek as from the Raft River.

The delineated source water assessment area for the well of Malta Elementary School can best be described as a pie-shaped corridor extending approximately 5 miles to the south-southeast from the wellhead and widening to approximately 4 miles (Figure 2). The actual data used by DEQ in determining the source water assessment delineation area is available from DEQ upon request.

FIGURE 1 - Geographic Location of Malta Elementary, PWS 5160030, Well #1



Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ, the Malta Elementary School, and from available databases.

The dominant land use outside the area of Malta Elementary School is irrigated agriculture and rangeland. Land use within the immediate area of the wellhead consists of residential and irrigated agricultural property.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

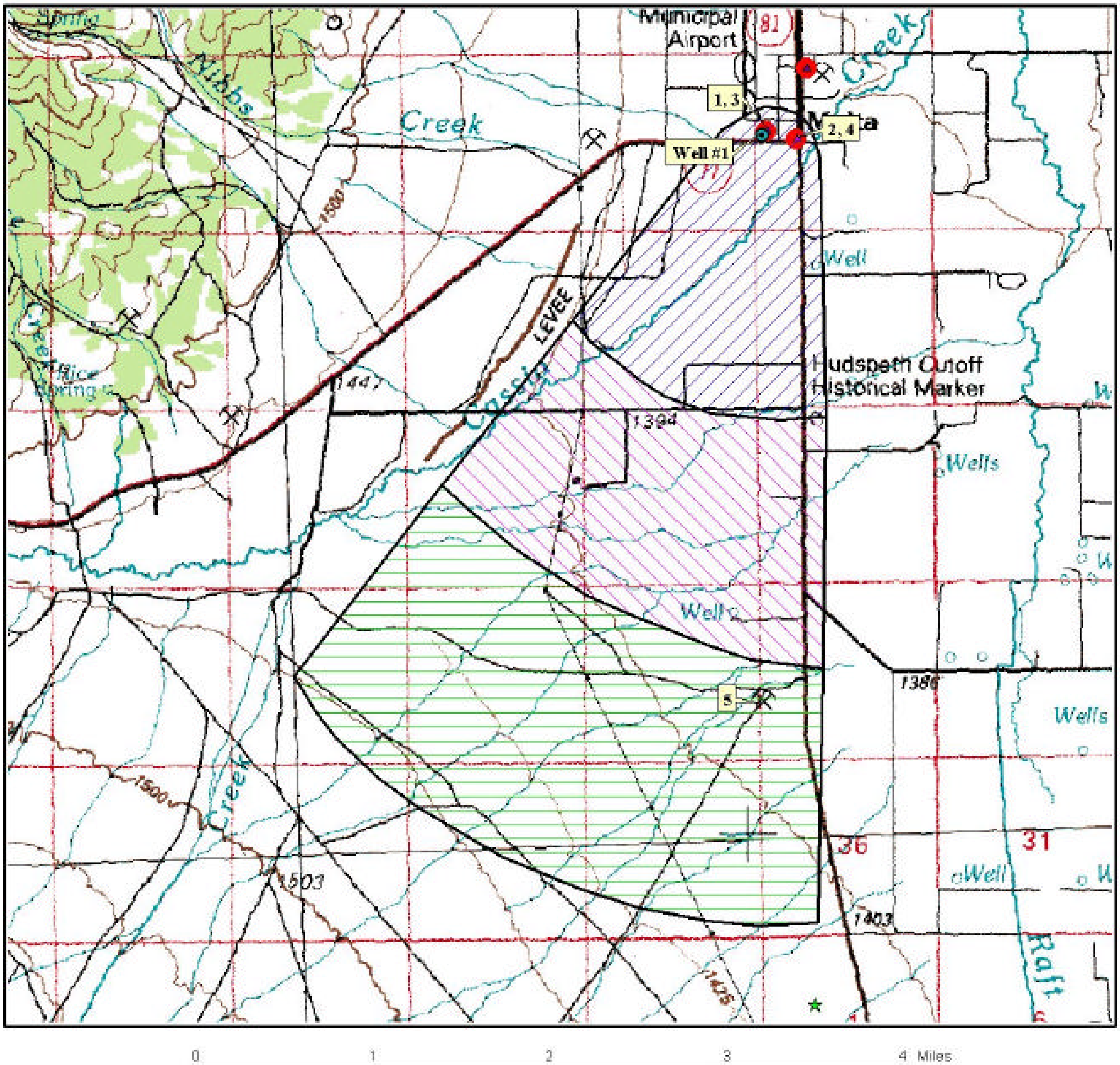
A contaminant inventory of the study area was conducted in May and June 2002. This involved identifying and documenting potential contaminant sources within the Malta Elementary School Source Water Assessment Areas through the use of computer databases and Geographic Information System maps developed by DEQ.

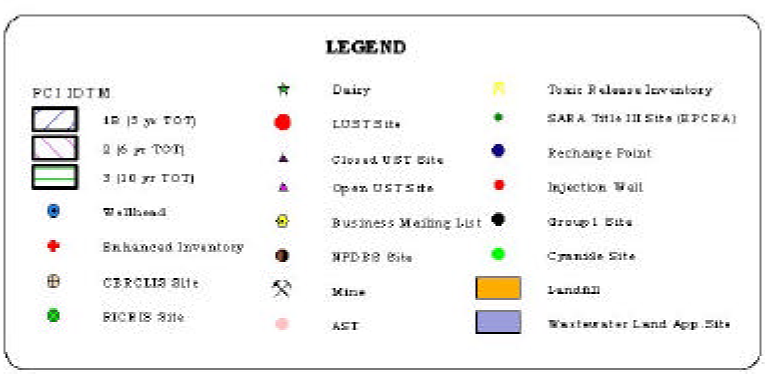
The delineation for the Malta Elementary School well has 6 listed potential sources (Table 1). The GIS map (Figure 2) shows that Highway 77, Highway 81, and Cassia Creek exist within the delineation. Contaminants could be added to the aquifer in the event of an accidental spill or release associated with these sources. Additionally, underground storage tanks (USTs), leaking underground storage tanks (LUSTs), and a gravel are point sources within the delineation which could contribute contaminants to the aquifer if an accident occurred at them.

Table 1. Well #1, Potential Contaminant Inventory

SITE	Source Description[1]	TOT[2] ZONE	Source of Information	Potential Contaminants [3]
1,3	Site Cleanup Completed , Impact: Unknown, LUST site, UST site	0-3 YR	Database Search	VOC, SOC
2, 4	Gas station; open; site cleanup completed, LUST site, UST site	0-3 YR	Database Search	IOC, VOC, SOC
5	Gravel pit	6-10 YR	Database Search	IOC, VOC, SOC
	Highway 77	0-3 YR	GIS Map	IOC, VOC, SOC, microbial
	Highway 81	0-10 YR	GIS Map	IOC, VOC, SOC, microbial
	Cassia Creek	0-6 YR	GIS Map	IOC, VOC, SOC, microbial

FIGURE 2 - Malta Elementary Delineation Map and Potential Contaminant Source Locations





Technical Services Data/GIS

W. Kelley 11/29/01

PWS# 5160030
Well #1

Section 3. Susceptibility Analyses

The well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

The hydrologic sensitivity was moderate for the well. This rating reflects the moderately to highly drained nature of the soil of the region, which would allow the downward movement of contaminants, and the presence of an aquitard above the producing zone of the well. The score was also increased because the vadose zone has a permeable composition and the depth to first water is less than 300 feet.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary Surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The well rated moderate for system construction. The well is not in a 100 year floodplain, and based on the May 2000 sanitary survey, it is protected from surface flooding. Also resulting in favorable ratings is the fact that the wellhead and surface seal are maintained, and the well's water derives from more than 100 feet below the current water table. The scores were increased because neither the perforated sections of casing nor the annular seal extend into low permeability units.

The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all Public Water Systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the requirements include casing thickness, well tests, and depth and formation type that the surface seal must be installed into. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Eight-inch diameter wells require a casing thickness of at least 0.322 inches and six-inch diameter wells require a casing thickness of 0.280 inches. Well tests are required at the design pumping rate for 24 hours or until stabilized drawdown has continued for at least six hours when pumping at 1.5 times the design pumping rate. A point was added to the well's score because current construction standards are either unknown or not followed. Though the wells may have met standards at the time of construction, current construction standards are stricter.

Potential Contaminant Source and Land Use

The Malta Elementary School well rated high for IOCs (e.g. arsenic, nitrate), SOCs (e.g. pesticides), and VOCs (e.g. petroleum products), and low for microbial contaminants (e.g. bacteria). The transportation corridors and the river, which run through the delineation, contributed to the rating, as well as the UST and LUST point sources. In addition, due to it's volume in the delineation, agricultural land was counted as a source for IOCs.

Final Susceptibility Rating

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well, despite the land use of the area, because a pathway for contamination already exists. Additionally, the storage or application of any potential contaminants within 50 feet of the wellhead will automatically lead to a high score. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time-of-travel zone (Zone 1B) and much agricultural land use contribute greatly to the overall ranking. In terms of total susceptibility, the Malta Elementary School wells have moderate susceptibility to the IOC, VOC, SOC, and microbial potential contaminants.

Table 2. Summary of the Malta Elementary School Susceptibility Evaluation

	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
Source		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	M	H	H	H	L	M	M	M	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

The Malta Elementary School drinking water system consists of one ground water well source. The well is located in the southeast corner of Malta. The well was constructed in 1990, is 338 feet deep, and the water system serves approximately 181 people through 5 connections.

In terms of overall susceptibility, Well #1 rated moderate for IOCs, VOCs, SOCs, and microbials. Hydrologic sensitivity and system construction scores were both moderate for the well. Land use scores in the well were high for IOCs, VOCs, SOCs, and low for microbials.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For the Malta Elementary School, drinking water protection activities should first focus on maintaining the requirements of the sanitary survey. Any spills from potential contaminant sources should be carefully monitored, as should any future development in the delineated areas. Practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. No chemicals should be stored or applied within the 50-foot radius of the wellhead. Most of the designated areas are outside the direct jurisdiction of Malta Elementary School, making partnerships with state and local agencies and industry groups critical to success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near to urban and residential land uses. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the U.S. Environmental Protection Agency. As there are major transportation corridors that cross the delineations, the State Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office	(208) 736-2190
State DEQ Office	(208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper, (mlharper@idahoruralwater.com) Idaho Rural Water Association, at 1-208-343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Bendizsen, S., 2000. Memo showing 1980 ground water elevations in Raft River area.

EPA Announces Arsenic Standard for Drinking Water of 10 parts per billion. Retrieved November 1, 2001 from EPA, EPA Newsroom website: http://www.epa.gov/epahome/headline_110101.htm

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "*Recommended Standards for Water Works.*"

Idaho Department of Environmental Quality, 1997. *Design Standards for Public Drinking Water Systems.* IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. *Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules*. IDAPA 37.03.09.

Morrilla, A.G. and D.R. Ralston, 1975, Preliminary Assessment of the Feasibility of using a shallow ground-water system for the cooling cycle of a geothermal power plant, Completion Report Contract No. AT(10-1)-1522 between the University of Idaho and the Energy Research and Development Administration.

Nace, R. L., and others, 1961, Water Resources of the Raft River Basin, Idaho-Utah: USGS Water-Supply Paper 1587, 138 pages.

Ralston, D.R., 1975, Analysis of Pump Test Results from tests conluded in the Raft River Basin, December 9-13, 1974, Idaho Bureau of Mines and Gelogy.

Appendix A

Malta Elementary School Susceptibility Analysis Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report   Public Water System Name : MALTA ELEMENTARY

Well# : WELL #1

Public Water System Number 5160030   07/09/2002 3:21:29 PM

1. System Construction		SCORE			
Drill Date	09/06/1990				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2000			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		3			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	YES	0			
Total Hydrologic Score		4			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	3	5	5	3
(Score = # Sources X 2) 8 Points Maximum		6	8	8	6
Sources of Class II or III leacheable contaminants or	YES	6	2	2	
4 Points Maximum		4	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	12	12	8
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		23	21	23	10
4. Final Susceptibility Source Score		12	11	12	11
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate